

REMARKS

Prior to this Amendment claims 18-36 were pending in this application. In the Office Action mailed June 4, 2010 ("Office Action"), claims 18-24 and 30-32 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,411,412 ("Jiang 1") (and U.S. Patent No. 6,288,811 ("Jiang 2"), which was incorporated by reference within Jiang 1) in view of U.S. Patent Application Publication No. 2002/0176131 ("Walters"); claim 25 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the hypothetical combination of Jiang 1 and Walters, in view of U.S. Patent No. 7,263,091 ("Woo"); claims 26-28 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the hypothetical combination of Jiang 1, Walters, and Woo, and further in view of U.S. Patent No. 6,256,125 ("Uehara"); and claim 29 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the hypothetical combination of Jiang 1 and Woo, in view of Uehara. The Office Action also allowed claims 35 and 36 and indicated that claims 33 and 34 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Applicant thanks the Examiner for the indication of the allowable subject matter recited in claims 33-36. By this Reply, Applicant amends claims 18, 30, and 31. No new matter has been added by this Reply. Accordingly, claims 18-36 remain pending in this application.

I. Claim Rejections Under 35 U.S.C. § 103(a)

In the Office Action, claims 18-24 and 30-32 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Jiang 1 in view of Walters; claim 25 was

rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the hypothetical combination of Jiang 1 and Walters, in view of Woo; claims 26-28 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the hypothetical combination of Jiang 1, Walters, and Woo, and further in view of Uehara; and claim 29 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the hypothetical combination of Jiang 1 and Woo, in view of Uehara

Applicant respectfully traverses the 35 U.S.C. § 103(a) rejections of claims 18-32 as presently amended, because the Office Action fails to establish a *prima facie* case of obviousness. In order to establish a *prima facie* case of obviousness, the record must "include[] findings of fact concerning the state of the art and the teachings of the references" The Manual of Patent Examining Procedure ("M.P.E.P.") § 2141(II) (8th ed., rev. 7, July 2008) (relying on *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 82 U.S.P.Q.2d (BNA) 1385 (2007), and confirming the legal framework established by *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966)). Moreover, "[o]nce the findings of fact are articulated, [the rejection statement] must provide an explanation to support an obviousness rejection under 35 U.S.C. [§] 103." Id. If it is found that the prior art references fail to disclose all of the subject matter recited in a claim, the rejection statement "must explain why the [missing claimed features] between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art." M.P.E.P. § 2141(III). Thus, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03.

Amended independent claims 18, 30, and 31 are the only independent claims included in this claim rejection, and Applicant respectfully traverses the rejection of

independent claims 18, 30, and 31 under 35 U.S.C. § 103(a) based on any hypothetical combination of Jiang 1, Walters, Woo, and Uehara, at least because none of the cited references, regardless of whether they are viewed individually or as a whole, disclose or render obvious all of the subject matter recited in independent claims 18, 30, and 31.

Applicant's specification describes an optical communication system that employs one or more packet and optical routing nodes. Each node is configured to process, forward, and route both packet and non-packet signals. In certain disclosed embodiments, each node is also configured with an integrated control system that is configured to control both packet and non-packet processing blocks located within the node. This capability to handle packet and non-packet signals in the same node, and interface with and control both packet and non-packet processing modules eliminates the need for separate systems to process packet and non-packet signals, in certain disclosed embodiments.

A. Amended Independent Claim 18

Amended independent claim 18 is directed to "a packet and optical routing equipment, comprising . . . a packet forwarding stage connected between said optical packet port and said optical forwarding and multiplexing stage, . . . wherein the packet forwarding stage comprises a packet and optical control plane configured to generate control signals for said optical input and output, said optical forwarding and multiplexing stage, said interface converter, said electric switching unit, and said non-packet and packet optical/electric converters;" None of the cited references disclose or render obvious at least this recited subject matter.

Jiang 1 discloses an optical communication network 10 that includes a plurality of optical network interface systems 230 and 250 (or 330 and 350 in Fig. 3) and a bridge 200 for transporting information from one optical waveguide channel to another through optical network interface systems over communication paths 411, 412, 421, and 422.

Jiang 1 at col. 2, lines 59-64 and Figs. 1 and 3. Each of optical network interface systems 330 and 350 includes two subsystems: optical network interfaces 332 and 352 and transponder arrays 334 and 354. Jiang 1 at col. 6, lines 9-13. Optical network interface systems 330 and 350 convert information encoded on the optical channels to electrical signals. Jiang 1 at col. 6, lines 39-42. Optical network interfaces 332 and 352 facilitate translation and transfer of information of both cell-formatted and TDM-formatted data using cell format modules 410, 430 and TDM format modules 420, 440, respectively. Jiang 1 at col. 6, lines 50-59.

The Office Action concedes that Jiang 1 "does not expressly disclose a packet and optical control plane as claimed." Office Action at 5. In an effort to remedy this

conceded deficiency of Jiang 1, the Office Action cites Walters and asserts that the node manager (250) of Walters constitutes "a packet and optical control plane . . . for signaling, routing, and fault protection of the node." Id. The Office Action continues, alleging that

The node manager controls the optical input and output (Fig. 2, TP ingress and TP egress, 240 and 245), forwarding and multiplexing stage (Fig. 3, multiplexing stage (346)), interface converters (Fig. 15, 1550 and 1552, electric switching unit (Fig. 15, FPGA's 1540 and 1542, and Sonet Framers 1510 and 1520), non-packet O/E converters (Fig. 16, 1625) and packet O/E converters (Fig. 15, 1525.)

Id. Applicant does not agree with the Office Action's assertion. For example, the Office Action asserts that node manager 250 "controls . . . non-packet O/E converters (Fig. 16, 1625) and packet O/E converters (Fig. 15, 1525)." Id. As best understood, the Office Action contends that Walters' disclosure of SONET "transceivers 1625" and Gigabit Ethernet "transceivers 1525" constitute Applicant's claimed "non-packet O/E converters" and "packet O/E converters," respectively. Importantly, however, Walters does not disclose whether either of transceivers 1625 or 1525 is configured to convert "packet" or "non-packet" signals. Indeed, other than suggesting that transceivers 1625 and 1525 are capable of converting electrical signals to optical signals, Walters is altogether silent with regard to the type of conversion format (e.g., packet vs. non-packet) that is supported by transceivers 1625 and 1525.

Moreover, the Office Action's assertion that Gigabit Ethernet "transceivers 1525" constitute Applicant's claimed "non-packet O/E converters" is incorrect. In particular, independent claim 18 recites a "non-packet O/E converter connected to said non-packet optical port and suitable for converting said branch non-packet signals into and from

non-packet electrical signals.” The Office Action fails to point to – nor have Applicants found – any disclosure in Walters that Gigabit Ethernet “transceivers 1525” are connected to a “**non-packet** optical port” and are “suitable for converting said branch **non-packet** signals into and from **non-packet** electrical signals,” as recited in Applicant’s independent claim 18. For at least this reason, the Office Action has failed to establish a *prima facie* case of obviousness with respect to amended independent claim 18, or claims 19-24 that depend therefrom.

Furthermore, the Office Action asserts that “[a]t the time of the invention it would have been obvious for a person of ordinary skill in the art to use [the node manager] (disclosed by Walters) in the system disclosed by Jiang 1.” Office Action at 5. As best understood, the Office Action contends that it is enough to simply show that the “node manager” described in Walters can be used in the system of Jiang 1. Applicant respectfully disagrees with the Office Action’s contention.

The M.P.E.P. mandates that, in order to support a rejection under 35 U.S.C. § 103(a), “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” M.P.E.P. § 2143.03. Importantly, Applicant’s independent claim 18 recites “**a packet forwarding stage** connected between said optical packet port and said optical forwarding and multiplexing stage, . . . wherein the packet forwarding stage **comprises a packet and optical control plane**.” Thus, “the packet and optical control plane” must be part of “the packet forwarding stage.” In contending only that “it would have been obvious for a person of ordinary skill in the art to use [the node manager] (disclosed by Walters) in the system disclosed by Jiang 1,” the Office

Action has effectively ignored the words of the claim that require that the packet and optical control plane" be part of "the packet forwarding stage."

Moreover, Applicant respectfully submits that it would not have been obvious for one of ordinary skill in the art to combine the "node manager" described in Walters with the cell format module 430 of Jiang 1 (which the Office Action relies on as purportedly teaching Applicant's claimed "packet forwarding stage"). Specifically, one of ordinary skill in the art could not combine the node manager described in Walters, which allegedly controls "overall management and operation of an entire [optical transport system]" *within* the packet-based cell format module 430 of Jiang 1 due to significant technological difficulties that such a combination would present.

Specifically, the node manager of Walters is not configured to handle or otherwise control "cell"-based packet formats (which the Office Action relies on as teaching Applicant's disclosed packet optical-electrical converter) without significant electrical modification. Nor is the node manager of Walters configured to control TDM-based format modules (which the Office Action relies on as teaching Applicant's disclosed packet optical/electrical converter) without significant electrical modifications. Modifying the node manager of Walters to support either or both of these features would not only require substantial electrical and structural modifications, but would also require fundamental reprogramming of the functionality of the node manager.

For at least the reasons outlined above, the Office Action does not establish a *prima facie* case of obviousness with respect to amended independent claim 18. Further, claims 19-24 depend, either directly or indirectly, from amended independent claim 18 and should be allowable for at least the same reason that amended

independent claim 18 is allowable. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 18-24 based on the hypothetical combination of Jiang 1 and Walters.

B. Amended Independent Claim 30

Amended independent claim 30 recites “an optical network of wavelength multiplexing type, comprising a plurality of packet and optical routing equipment and a plurality of optical connections extending between pairs of packet and optical routing equipment, each said packet and optical routing equipment comprising: a packet forwarding stage connected between said optical packet port and said optical forwarding and multiplexing stage, the packet forwarding stage comprising a packet and optical control plane configured to generate control signals for said optical input and output, said optical forwarding and multiplexing stage, said interface converter, said electric switching unit, and said non-packet and packet optical/electric converters;”

As noted above with regard to amended independent claim 18, the hypothetical combination of Jiang 1 and Walters fails to disclose or render obvious at least this recited subject matter. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claim 30 based on the hypothetical combination of Jiang 1 and Walters.

C. Amended Independent Claim 31

Amended independent claim 31 is directed to a method for packet and optical signal routing, comprising “generating, at a packet and optical control plane, control signals for an optical input and output, the optical forwarding and multiplexing stage, the interface converter, the electric switching unit, and the non-packet and packet

optical/electric converters." As noted above with regard to amended independent claim 18, the hypothetical combination of Jiang 1 and Walters fails to disclose or render obvious at least this recited subject matter. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claim 30 based on the hypothetical combination of Jiang 1 and Walters. Further, claim 32 depends from amended independent claim 31 and should be allowable for at least the same reason that amended independent claim 31 is allowable.

D. Dependent Claim 25

Dependent claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Jiang 1 and Walters in view of Woo. Dependent claim 25 depends from independent claim 18, which is allowable over Jiang 1 and Walters for at least the reasons outlined above. Woo, which was cited only for its purported disclosure of a forwarding engine coupled between an electronic switching unit and a packet optical/electrical converter, does not remedy the deficiencies of Jiang 1 and Walters outlined above. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claim 25 is improper and should be withdrawn.

E. Dependent Claims 26-28

Dependent claims 26-28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jiang 1, Walters, and Woo, and further in view of Uehara. Each of dependent claims 26-28 depends indirectly from independent claim 18, which is allowable over Jiang 1 and Walters for at least the reasons outlined above. Woo, which was cited only for its purported disclosure of a forwarding engine coupled between an electronic switching unit and a packet optical/electrical converter, does not remedy the

deficiencies of Jiang 1 and Walters outlined above. Uehara, which was cited only for its purported disclosure of various aspects of channel termination units, also fails to remedy the deficiencies of the combination of Jiang 1, Walters, and Woo. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 26-28 is improper and should be withdrawn.

F. Dependent Claim 29

Dependent claim 29 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Jiang 1 and Walters in view of Uehara. Dependent claim 29 depends independent claim 18, which is allowable over Jiang 1 and Walters for at least the reasons outlined above. Uehara, which was cited only for its purported disclosure of an optical switching unit connected to an interface converter and a multiplexing/demultiplexing unit, does not remedy the deficiencies of Jiang 1 and Walters outlined above. Uehara, which was cited only for its purported disclosure of various aspects of channel termination units, fails to remedy the deficiencies of the Jiang 1 and Walters. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 29 is improper and should be withdrawn.

II. Conclusion

In view of the foregoing remarks, Applicant respectfully requests reconsideration and reexamination of this application, withdrawal of the claim rejections, and timely allowance of pending claims 18-34.

The Office Action contains characterizations and assertions regarding the claims and the cited art with which Applicant does not necessarily agree. Unless expressly

noted otherwise, Applicant respectfully declines to automatically subscribe to any characterizations or assertions included in the Office Action.

If the Examiner believes that a conversation might expedite prosecution of this application, the Examiner is cordially invited to call Applicant's undersigned representative.

Please grant any extensions of time required to enter this Response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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